

PATENT ABSTRACTS OF JAPAN

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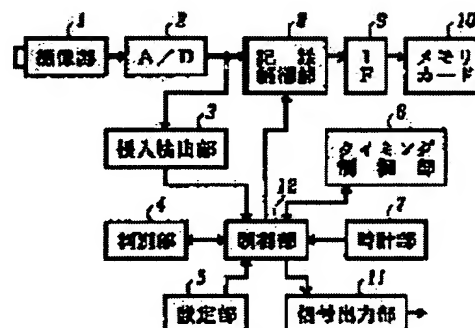
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(54) MONITORING VIDEO RECORDING SYSTEM

(57)Abstract:

PROBLEM TO BE SOLVED: To easily retrieve the video of intruding object, etc., by mounting a memory card to a camera so as to record an intruding time, an intruding position, etc., with the video of the intruding object.

SOLUTION: A video signal from an image pickup part 1 is digitally converted by an A/D conversion part 2 and inputted to an intrusion detecting part 3 to detect the variation of luminance by a block of each necessary number of pixels, and a discrimination part 4 discriminates the intrusion of the object. The recording of video from the part 1 to the memory card 10 through a recording control part 8 is started and the intruding position and an intruding direction are simultaneously discriminated to be recorded in the card 10 with a time from a clock part 7. When the intruding object leaves, the recording of video is stopped. Video is recorded at necessary frame intervals according to a signal from a timing control part 6 or the setting of a setting part 5.



LEGAL STATUS

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CLAIMS

[Claim(s)]

[Claim 1] The monitor image recording method become from the image pick-up section which picturizes a monitor field and outputs a video signal, the trespass detecting element which detects a trespass body based on the image from the image pick-up section, the distinction section which output an image record indication signal when a trespass body goes into a necessary record section by the signal from a trespass detecting element, and the record control section which record on the memory card equipped with the video signal from said image pick-up section based on the image record indication signal from the distinction section.

[Claim 2] The 1st frame type area which said trespass detecting element divided the image from said image pick-up section into two or more every several necessary pixel blocks, and ****(ed) the block of the outermost periphery of a screen, The monitor image recording method according to claim 1 which classifies into the 2nd frame type area which ****(ed) the block inscribed in the 1st area, and the 3rd area which corresponds to said record section by the whole block inside the 2nd area, and detected the trespass body according to each area.

[Claim 3] Said trespass detecting element is a monitor image recording method according to claim 2 which comes to be what outputs a detecting signal according to a block when brightness change arises with the image from said image pick-up section.

[Claim 4] Said trespass detecting element is the monitor image recording method according to claim 3 it was made to output a detecting signal when said brightness change was beyond a necessary threshold.

[Claim 5] Said distinction section is a monitor image recording method according to claim 2, 3, or 4 which comes to be what outputs an image record indication signal when a trespass body is detected subsequently to the order of the 3rd area the 2nd area the 1st area in said trespass detecting element.

[Claim 6] Said distinction section is the monitor image recording method according to claim 2, 3, 4, or 5 which distinguishes an objective trespass location and the travelling direction after trespass based on the signal from said trespass detecting element, outputs a trespass data-logging indication signal when it goes into said 3rd area whose trespass body is a record section, and recorded the data of the travelling direction after a trespass location and trespass on said memory card through said record control section.

[Claim 7] It is the monitor image recording method according to claim 6 which said distinction section distinguishes the location of the block which detected brightness change of said 1st area from a trespass location, and distinguishes the direction which connects the block which detected brightness change of the 2nd area which adjoins said block, and the block which detected brightness change of the 3rd area which adjoins the block of said 2nd area from the travelling direction after body trespass.

[Claim 8] The monitor image recording method according to claim 5, 6, or 7 which prepares the clock section and recorded the time of day from the clock section on the memory card through said record control section with the trespass data-logging indication signal from said distinction section.

[Claim 9] The monitor image recording method according to claim 2 to 8 was between contiguity blocks subsequently to the order of the 1st area, and outputs the indication signal of an image record halt and it was made to stop record of a memory card through said record control section the 2nd area the 3rd area in said trespass detecting element from said distinction section when [said]

migration of a trespass body was detected.

[Claim 10] The monitor image recording method according to claim 1 to 9 which prepares the timing-control section which controls frame spacing of said image record, and recorded the video signal from the image pick-up section on the memory card through said record control section at intervals of the frame based on the signal from the timing-control section.

[Claim 11] The monitor image recording method according to claim 10 it was made to output the control signal of frame spacing which prepared the setting-out section which sets up frame spacing of said image record, and was set up in the setting-out section from said timing-control section.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to a monitor image recording method, and relates to what is recorded on the memory card (semiconductor memory) which equipped the television camera for a monitor with the data of the image of a trespass body, and a trespass situation.

[0002]

[Description of the Prior Art] In the supervisory equipment using the television camera for a monitor (it abbreviates to a camera henceforth), the thing of the method which the image from a camera is recorded on an image recording device, and equipment becomes large-sized, and always records an image irrespective of the existence of abnormalities needs what has a large capacity for a recording device, and difficulty was in retrieval of the image at the time of an abnormal occurrence.

[0003]

[Problem(s) to be Solved by the Invention] This invention is recorded on the memory card equipped with trespass data, such as an image of a trespass body, trespass time of day, a trespass location, and the trespass direction, by the camera by objective trespass in view of such a point, and while unifying a camera and a recording device and miniaturizing, it aims at the ability to be made to make retrieval of a record image easy.

[0004]

[Means for Solving the Problem] In order to attain the above-mentioned object, it sets to the monitor image recording method of this invention. The image pick-up section which picturizes a monitor field and outputs a video signal, and the trespass detecting element which detects a trespass body based on the image from the image pick-up section, It constitutes from the distinction section which outputs an image record indication signal when a trespass body goes into a necessary record section by the signal from a trespass detecting element, and a record control section recorded on the memory card equipped with the video signal from said image pick-up section based on the image record indication signal from the distinction section.

[0005] Said trespass detecting element divides the image from the image pick-up section into two or more every several necessary pixel blocks, classifies it into the 1st frame type area which ****(ed) the block of the outermost periphery of a screen, the 2nd frame type area which ****(ed) the block inscribed in the 1st area, and the 3rd area which corresponds to said record section by the whole block inside the 2nd area, and detects a trespass body according to each area.

[0006] Moreover, when brightness change arises with the image from the image pick-up section, it is made for a trespass detecting element to output a detecting signal according to a block.

[0007] In addition, when brightness change of an image is beyond a necessary threshold, you may make it output a detecting signal from a trespass detecting element.

[0008] In a trespass detecting element, the 1st area, the 2nd area, when a trespass body is detected subsequently to the order of the 3rd area, as for said distinction section, it outputs an image record indication signal.

[0009] Moreover, the distinction section distinguishes an objective trespass location and the travelling direction after trespass based on the signal from a trespass detecting element, when it goes into the 3rd area whose trespass body is a record section, it outputs a trespass data-logging indication signal, and it records the data of the travelling direction after a trespass location and trespass on a

memory card through a record control section.

[0010] In addition, the distinction section distinguishes the location of the block which detected brightness change of the 1st area from a trespass location, and distinguishes the direction which connects the block which detected brightness change of the 2nd area which adjoins this block, and the block which detected brightness change of the 3rd area which adjoins the block of this 2nd area from the travelling direction after body trespass.

[0011] Furthermore, the clock section is prepared and the time of day from the clock section is recorded on a memory card through a record control section with the trespass data-logging indication signal from the distinction section.

[0012] And in said trespass detecting element, the 3rd area, subsequently to the order of the 1st area, it is between contiguity blocks, and the 2nd area, when migration of a trespass body is detected, from the distinction section, the indication signal of an image record halt is outputted and record of a memory card is stopped through a record control section.

[0013] Moreover, the timing-control section which controls frame spacing of image record is prepared, and the video signal from the image pick-up section is recorded on a memory card through a record control section at intervals of the frame based on the signal from the timing-control section.

[0014] Or the setting-out section which sets up frame spacing of image record is prepared, and it is made to output the control signal of frame spacing set up in the setting-out section from said timing-control section, and you may make it record a video signal at intervals of a proper frame according to the capacity of the memory card with which it is equipped.

[0015]

[Embodiment of the Invention] The gestalt of implementation of invention is explained with reference to a drawing based on an example. Drawing 1 is the important section block diagram of one example of the monitor image recording method by this invention. In drawing, 1 is the image pick-up section and outputs the video signal of the monitor field by CCD (charge-coupled device). 2 is the A/D-conversion section and changes the video signal from the image pick-up section 1 into a digital signal. 3 is a trespass detecting element and detects objective trespass to a monitor field with the video signal through the A/D-conversion section 2. 4 is the distinction section, distinguishes those with a trespass body based on the signal from the trespass detecting element 3, and outputs the signal of image record directions and trespass data-logging directions. 5 is the setting-out section and sets up frame spacing of image record. 6 is the timing-control section and outputs the signal which controls frame spacing of image record. 7 is the clock section and outputs the signal of time of day. 8 is a record control section and records the video signal from the A/D-conversion section 2 on a memory card 10 through an interface 9 at intervals of the frame from the setting-out section 5 or the timing-control section 6 based on the signal from the distinction section 4. 11 is a signal output part and outputs the signal which shows those with a trespass body based on the signal from the distinction section 4. 12 is a control section and controls each part.

[0016] Next, actuation of the monitor image recording method by this invention is explained. A monitor field is always picturized in the image pick-up section 1, the video signal from the image pick-up section 1 is changed into a digital signal in the A/D-conversion section 2, and it inputs into the trespass detecting element 3. The 1st area ** which the image screen from the image pick-up section 1 was divided into the every several necessary pixel block (eye the minimum measure of drawing), and the block of the outermost periphery was ****(ed), and was used as the frame type as the trespass detecting element 3 was shown in the drawing 2 (**). It classifies into the 2nd area ** which the block inscribed in the 1st area ** was ****(ed), and was used as the frame type, and the 3rd area ** of the whole block in the 2nd area **, and a trespass body is detected according to area. Brightness change arises with each block, and detection of a trespass body is outputted according to a block of a signal with a trespass body, when this brightness change is larger than a necessary value (threshold defined beforehand).

[0017] As shown in the flow chart of drawing 3, namely, by the trespass detecting element 3 For example, the block a of the 1st area ** shown in drawing 2 (b) detects brightness change (step 1: it Yes(es)). Henceforth, the block b of the 2nd area ** which abbreviates to ST1, ranks second and adjoins this block a brightness change is detected by any of c or d they are (ST2:Yes) -- further Then, the blocks e, f, or g of the 3rd area ** which adjoins Block b, Or the blocks f, g, or h of the 3rd area

** which adjoins Block c, A control section 12 is minded the case (ST3:Yes) where brightness change is detected by any of the blocks g, h, or i of the 3rd area ** which adjoins Block d they are. Or by the distinction section 4 A body a->b->e, a->b->f, or a->b->g (above thick wire arrow head), Or a->c->f, a->c->g, or a->c->h (above thin line arrow head), Or it distinguishes from a->d->g, a->d->h, or the thing that invaded in which path of a->d->i (above dotted-line arrow head). The indication signal of an image recording start is outputted to the record control section 8 through a control section 12. The record section (the 3rd area **) of the video signal inputted through the A/D-conversion section 2 from the image pick-up section 1 It inputs into a memory card 10 through an interface 9, and record is started. Simultaneously The trespass location (address of Block a) from the distinction section 4, and the data of the travelling direction after trespass (each address, such as Blocks a, b, and e), The indication signal which records the time of day from the clock section 7 is outputted, it records on a memory card 10 and a signal is outputted to the device and equipment which should operate these and coincidence by body trespass from a signal output part 11 (ST4). In addition, after going into the 3rd area **, you may make it distinguish that they are a series of trespass actuation even when going into the 3rd area ** again, return and to the 2nd area ** or the 1st area **, when moving between the contiguity blocks in the same area although 1 block of the 1st area ** and the every 1 block 2nd area ** move and the trespass body was explained above. [0018] By the distinction section 4, the migration situation of the body which invaded into the 3rd area ** is supervised (ST5). (distinction) A body moves between contiguity blocks in order of the 3rd area **-> 2nd area **-> 1st area **. When it disappears from the 1st area ** (ST6:Yes), a trespass body distinguishes from what left from the monitor field, outputs the signal of an image record halt to the record control section 8, and stops record of a memory card 10 (ST7), and it goes into the executive state of a new trespass body.

[0019] Based on the signal from the timing-control section 6, the record control section 8 performs record of the image to a memory card 10 at intervals of a proper frame like one frame or one frame every five frames every two frames. This is because it is that trouble hardly arises in an objective check, and the effective approach for enabling it to correspond to a prolonged monitor, without updating a memory card 10 which have the intermittent image recorded, and a necessary control signal is made to be outputted from the timing-control section 6 according to the capacity of a memory card 10. Or you may enable it to set up frame spacing in the setting-out section 5 according to an application. In this case, the control signal of the timing set up in the setting-out section 5 from the timing-control section 6 is outputted, and frame spacing of image record of a memory card 10 is controlled by the record control section 8.

[0020] Retrieval of a record image takes out a memory card 10, and equips a necessary reader with it, for example, inputs time of day or a trespass location (address of a block of the 1st area **). The image recorded on the inputted time of day or the time zone or the image of the body which invaded from the inputted location is read from a memory card 10, and is displayed on a screen.

[0021]

[Effect of the Invention] According to the monitor image recording method by this invention, a camera is equipped with a small memory card as explained above. Only while a close trespass body is in a necessary record section, it is what records the image of a camera on a memory card with data, such as trespass time of day, a trespass location, or the trespass direction. It has the advantage to which record of long duration is attained by being able to use the capacity of a memory card effectively, since record of an image is stopped while there is no trespass body, and setting up frame spacing of an image suitably according to the capacity of a memory card. The recorded image can be searched by the trespass entry of data.

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TECHNICAL FIELD

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PRIOR ART

[Description of the Prior Art] In the supervisory equipment using the television camera for a monitor (it abbreviates to a camera henceforth), the thing of the method which the image from a camera is recorded on an image recording device, and equipment becomes large-sized, and always records an image irrespective of the existence of abnormalities needs what has a large capacity for a recording device, and difficulty was in retrieval of the image at the time of an abnormal occurrence.

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EFFECT OF THE INVENTION

[Effect of the Invention] According to the monitor image recording method by this invention, a camera is equipped with a small memory card as explained above. Only while a close trespass body is in a necessary record section, it is what records the image of a camera on a memory card with data, such as trespass time of day, a trespass location, or the trespass direction. It has the advantage to which record of long duration is attained by being able to use the capacity of a memory card effectively, since record of an image is stopped while there is no trespass body, and setting up frame spacing of an image suitably according to the capacity of a memory card. The recorded image can be searched by the trespass entry of data.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] This invention is recorded on the memory card equipped with trespass data, such as an image of a trespass body, trespass time of day, a trespass location, and the trespass direction, by the camera by objective trespass in view of such a point, and while unifying a camera and a recording device and miniaturizing, it aims at the ability to be made to make retrieval of a record image easy.

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MEANS

[Means for Solving the Problem] In order to attain the above-mentioned object, it sets to the monitor image recording method of this invention. The image pick-up section which picturizes a monitor field and outputs a video signal, and the trespass detecting element which detects a trespass body based on the image from the image pick-up section, It constitutes from the distinction section which outputs an image record indication signal when a trespass body goes into a necessary record section by the signal from a trespass detecting element, and a record control section recorded on the memory card equipped with the video signal from said image pick-up section based on the image record indication signal from the distinction section.

[0005] Said trespass detecting element divides the image from the image pick-up section into two or more every several necessary pixel blocks, classifies it into the 1st frame type area which ****(ed) the block of the outermost periphery of a screen, the 2nd frame type area which ****(ed) the block inscribed in the 1st area, and the 3rd area which corresponds to said record section by the whole block inside the 2nd area, and detects a trespass body according to each area.

[0006] Moreover, when brightness change arises with the image from the image pick-up section, it is made for a trespass detecting element to output a detecting signal according to a block.

[0007] In addition, when brightness change of an image is beyond a necessary threshold, you may make it output a detecting signal from a trespass detecting element.

[0008] In a trespass detecting element, the 1st area, the 2nd area, when a trespass body is detected subsequently to the order of the 3rd area, as for said distinction section, it outputs an image record indication signal.

[0009] Moreover, the distinction section distinguishes an objective trespass location and the travelling direction after trespass based on the signal from a trespass detecting element, when it goes into the 3rd area whose trespass body is a record section, it outputs a trespass data-logging indication signal, and it records the data of the travelling direction after a trespass location and trespass on a memory card through a record control section.

[0010] In addition, the distinction section distinguishes the location of the block which detected brightness change of the 1st area from a trespass location, and distinguishes the direction which connects the block which detected brightness change of the 2nd area which adjoins this block, and the block which detected brightness change of the 3rd area which adjoins the block of this 2nd area from the travelling direction after body trespass.

[0011] Furthermore, the clock section is prepared and the time of day from the clock section is recorded on a memory card through a record control section with the trespass data-logging indication signal from the distinction section.

[0012] And in said trespass detecting element, the 3rd area, subsequently to the order of the 1st area, it is between contiguity blocks, and the 2nd area, when migration of a trespass body is detected, from the distinction section, the indication signal of an image record halt is outputted and record of a memory card is stopped through a record control section.

[0013] Moreover, the timing-control section which controls frame spacing of image record is prepared, and the video signal from the image pick-up section is recorded on a memory card through a record control section at intervals of the frame based on the signal from the timing-control section.

[0014] Or the setting-out section which sets up frame spacing of image record is prepared, and it is made to output the control signal of frame spacing set up in the setting-out section from said timing-

control section, and you may make it record a video signal at intervals of a proper frame according to the capacity of the memory card with which it is equipped.

[0015]

[Embodiment of the Invention] The gestalt of implementation of invention is explained with reference to a drawing based on an example. Drawing 1 is the important section block diagram of one example of the monitor image recording method by this invention. In drawing, 1 is the image pick-up section and outputs the video signal of the monitor field by CCD (charge-coupled device). 2 is the A/D-conversion section and changes the video signal from the image pick-up section 1 into a digital signal. 3 is a trespass detecting element and detects objective trespass to a monitor field with the video signal through the A/D-conversion section 2. 4 is the distinction section, distinguishes those with a trespass body based on the signal from the trespass detecting element 3, and outputs the signal of image record directions and trespass data-logging directions. 5 is the setting-out section and sets up frame spacing of image record. 6 is the timing-control section and outputs the signal which controls frame spacing of image record. 7 is the clock section and outputs the signal of time of day. 8 is a record control section and records the video signal from the A/D-conversion section 2 on a memory card 10 through an interface 9 at intervals of the frame from the setting-out section 5 or the timing-control section 6 based on the signal from the distinction section 4. 11 is a signal output part and outputs the signal which shows those with a trespass body based on the signal from the distinction section 4. 12 is a control section and controls each part.

[0016] Next, actuation of the monitor image recording method by this invention is explained. A monitor field is always picturized in the image pick-up section 1, the video signal from the image pick-up section 1 is changed into a digital signal in the A/D-conversion section 2, and it inputs into the trespass detecting element 3. The 1st area ** which the image screen from the image pick-up section 1 was divided into the every several necessary pixel block (eye the minimum measure of drawing), and the block of the outermost periphery was ****(ed), and was used as the frame type as the trespass detecting element 3 was shown in the drawing 2 (**), It classifies into the 2nd area ** which the block inscribed in the 1st area ** was ****(ed), and was used as the frame type, and the 3rd area ** of the whole block in the 2nd area **, and a trespass body is detected according to area. Brightness change arises with each block, and detection of a trespass body is outputted according to a block of a signal with a trespass body, when this brightness change is larger than a necessary value (threshold defined beforehand).

[0017] As shown in the flow chart of drawing 3, namely, by the trespass detecting element 3 For example, the block a of the 1st area ** shown in drawing 2 (b) detects brightness change (step 1: it Yes(es)). Henceforth, the block b of the 2nd area ** which abbreviates to ST1, ranks second and adjoins this block a brightness change is detected by any of c or d they are (ST2:Yes) -- further Then, the blocks e, f, or g of the 3rd area ** which adjoins Block b, Or the blocks f, g, or h of the 3rd area ** which adjoins Block c, A control section 12 is minded the case (ST3:Yes) where brightness change is detected by any of the blocks g, h, or i of the 3rd area ** which adjoins Block d they are. Or by the distinction section 4 A body a->b->e, a->b->f, or a->b->g (above thick wire arrow head), Or a->c->f, a->c->g, or a->c->h (above thin line arrow head), Or it distinguishes from a->d->g, a->d->h, or the thing that invaded in which path of a->d->i (above dotted-line arrow head). The indication signal of an image recording start is outputted to the record control section 8 through a control section 12. The record section (the 3rd area **) of the video signal inputted through the A/D-conversion section 2 from the image pick-up section 1 It inputs into a memory card 10 through an interface 9, and record is started. Simultaneously The trespass location (address of Block a) from the distinction section 4, and the data of the travelling direction after trespass (each address, such as Blocks a, b, and e), The indication signal which records the time of day from the clock section 7 is outputted, it records on a memory card 10 and a signal is outputted to the device and equipment which should operate these and coincidence by body trespass from a signal output part 11 (ST4). In addition, after going into the 3rd area **, you may make it distinguish that they are a series of trespass actuation even when going into the 3rd area ** again, return and to the 2nd area ** or the 1st area **, when moving between the contiguity blocks in the same area although 1 block of the 1st area ** and the every 1 block 2nd area ** move and the trespass body was explained above.

[0018] By the distinction section 4, the migration situation of the body which invaded into the 3rd

area ** is supervised (ST5). (distinction) A body moves between contiguity blocks in order of the 3rd area **-> 2nd area **-> 1st area **. When it disappears from the 1st area ** (ST6:Yes), a trespass body distinguishes from what left from the monitor field, outputs the signal of an image record halt to the record control section 8, and stops record of a memory card 10 (ST7), and it goes into the executive state of a new trespass body.

[0019] Based on the signal from the timing-control section 6, the record control section 8 performs record of the image to a memory card 10 at intervals of a proper frame like one frame or one frame every five frames every two frames. This is because it is that trouble hardly arises in an objective check, and the effective approach for enabling it to correspond to a prolonged monitor, without updating a memory card 10 which have the intermittent image recorded, and a necessary control signal is made to be outputted from the timing-control section 6 according to the capacity of a memory card 10. Or you may enable it to set up frame spacing in the setting-out section 5 according to an application. In this case, the control signal of the timing set up in the setting-out section 5 from the timing-control section 6 is outputted, and frame spacing of image record of a memory card 10 is controlled by the record control section 8.

[0020] Retrieval of a record image takes out a memory card 10, and equips a necessary reader with it, for example, inputs time of day or a trespass location (address of a block of the 1st area **). The image recorded on the inputted time of day or the time zone or the image of the body which invaded from the inputted location is read from a memory card 10, and is displayed on a screen.

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MEANS

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[0006] Moreover, when brightness change arises with the image from the image pick-up section, it is made for a trespass detecting element to output a detecting signal according to a block.

[0007] In addition, when brightness change of an image is beyond a necessary threshold, you may make it output a detecting signal from a trespass detecting element.

[0008] In a trespass detecting element, the 1st area, the 2nd area, when a trespass body is detected subsequently to the order of the 3rd area, as for said distinction section, it outputs an image record indication signal.

[0009] Moreover, the distinction section distinguishes an objective trespass location and the travelling direction after trespass based on the signal from a trespass detecting element, when it goes into the 3rd area whose trespass body is a record section, it outputs a trespass data-logging indication signal, and it records the data of the travelling direction after a trespass location and trespass on a memory card through a record control section.

[0010] In addition, the distinction section distinguishes the location of the block which detected brightness change of the 1st area from a trespass location, and distinguishes the direction which connects the block which detected brightness change of the 2nd area which adjoins this block, and the block which detected brightness change of the 3rd area which adjoins the block of this 2nd area from the travelling direction after body trespass.

[0011] Furthermore, the clock section is prepared and the time of day from the clock section is recorded on a memory card through a record control section with the trespass data-logging indication signal from the distinction section.

[0012] And in said trespass detecting element, the 3rd area, subsequently to the order of the 1st area, it is between contiguity blocks, and the 2nd area, when migration of a trespass body is detected, from the distinction section, the indication signal of an image record halt is outputted and record of a memory card is stopped through a record control section.

[0013] Moreover, the timing-control section which controls frame spacing of image record is prepared, and the video signal from the image pick-up section is recorded on a memory card through a record control section at intervals of the frame based on the signal from the timing-control section.

[0014] Or the setting-out section which sets up frame spacing of image record is prepared, and it is made to output the control signal of frame spacing set up in the setting-out section from said timing-

control section, and you may make it record a video signal at intervals of a proper frame according to the capacity of the memory card with which it is equipped.

[0015]

[Embodiment of the Invention] The gestalt of implementation of invention is explained with reference to a drawing based on an example. Drawing 1 is the important section block diagram of one example of the monitor image recording method by this invention. In drawing, 1 is the image pick-up section and outputs the video signal of the monitor field by CCD (charge-coupled device). 2 is the A/D-conversion section and changes the video signal from the image pick-up section 1 into a digital signal. 3 is a trespass detecting element and detects objective trespass to a monitor field with the video signal through the A/D-conversion section 2. 4 is the distinction section, distinguishes those with a trespass body based on the signal from the trespass detecting element 3, and outputs the signal of image record directions and trespass data-logging directions. 5 is the setting-out section and sets up frame spacing of image record. 6 is the timing-control section and outputs the signal which controls frame spacing of image record. 7 is the clock section and outputs the signal of time of day. 8 is a record control section and records the video signal from the A/D-conversion section 2 on a memory card 10 through an interface 9 at intervals of the frame from the setting-out section 5 or the timing-control section 6 based on the signal from the distinction section 4. 11 is a signal output part and outputs the signal which shows those with a trespass body based on the signal from the distinction section 4. 12 is a control section and controls each part.

[0016] Next, actuation of the monitor image recording method by this invention is explained. A monitor field is always picturized in the image pick-up section 1, the video signal from the image pick-up section 1 is changed into a digital signal in the A/D-conversion section 2, and it inputs into the trespass detecting element 3. The 1st area ** which the image screen from the image pick-up section 1 was divided into the every several necessary pixel block (eye the minimum measure of drawing), and the block of the outermost periphery was ****(ed), and was used as the frame type as the trespass detecting element 3 was shown in the drawing 2 (**), It classifies into the 2nd area ** which the block inscribed in the 1st area ** was ****(ed), and was used as the frame type, and the 3rd area ** of the whole block in the 2nd area **, and a trespass body is detected according to area. Brightness change arises with each block, and detection of a trespass body is outputted according to a block of a signal with a trespass body, when this brightness change is larger than a necessary value (threshold defined beforehand).

[0017] As shown in the flow chart of drawing 3, namely, by the trespass detecting element 3 For example, the block a of the 1st area ** shown in drawing 2 (b) detects brightness change (step 1: it Yes(es)). Henceforth, the block b of the 2nd area ** which abbreviates to ST1, ranks second and adjoins this block a brightness change is detected by any of c or d they are (ST2:Yes) -- further Then, the blocks e, f, or g of the 3rd area ** which adjoins Block b, Or the blocks f, g, or h of the 3rd area ** which adjoins Block c, A control section 12 is minded the case (ST3:Yes) where brightness change is detected by any of the blocks g, h, or i of the 3rd area ** which adjoins Block d they are. Or by the distinction section 4 A body a->b->e, a->b->f, or a->b->g (above thick wire arrow head), Or a->c->f, a->c->g, or a->c->h (above thin line arrow head), Or it distinguishes from a->d->g, a->d->h, or the thing that invaded in which path of a->d->i (above dotted-line arrow head). The indication signal of an image recording start is outputted to the record control section 8 through a control section 12. The record section (the 3rd area **) of the video signal inputted through the A/D-conversion section 2 from the image pick-up section 1 It inputs into a memory card 10 through an interface 9, and record is started. Simultaneously The trespass location (address of Block a) from the distinction section 4, and the data of the travelling direction after trespass (each address, such as Blocks a, b, and e), The indication signal which records the time of day from the clock section 7 is outputted, it records on a memory card 10 and a signal is outputted to the device and equipment which should operate these and coincidence by body trespass from a signal output part 11 (ST4). In addition, after going into the 3rd area **, you may make it distinguish that they are a series of trespass actuation even when going into the 3rd area ** again, return and to the 2nd area ** or the 1st area **, when moving between the contiguity blocks in the same area although 1 block of the 1st area ** and the every 1 block 2nd area ** move and the trespass body was explained above.

[0018] By the distinction section 4, the migration situation of the body which invaded into the 3rd

area ** is supervised (ST5). (distinction) A body moves between contiguity blocks in order of the 3rd area **-> 2nd area **-> 1st area **. When it disappears from the 1st area ** (ST6:Yes), a trespass body distinguishes from what left from the monitor field, outputs the signal of an image record halt to the record control section 8, and stops record of a memory card 10 (ST7), and it goes into the executive state of a new trespass body.

[0019] Based on the signal from the timing-control section 6, the record control section 8 performs record of the image to a memory card 10 at intervals of a proper frame like one frame or one frame every five frames every two frames. This is because it is that trouble hardly arises in an objective check, and the effective approach for enabling it to correspond to a prolonged monitor, without updating a memory card 10 which have the intermittent image recorded, and a necessary control signal is made to be outputted from the timing-control section 6 according to the capacity of a memory card 10. Or you may enable it to set up frame spacing in the setting-out section 5 according to an application. In this case, the control signal of the timing set up in the setting-out section 5 from the timing-control section 6 is outputted, and frame spacing of image record of a memory card 10 is controlled by the record control section 8.

[0020] Retrieval of a record image takes out a memory card 10, and equips a necessary reader with it, for example, inputs time of day or a trespass location (address of a block of the 1st area **). The image recorded on the inputted time of day or the time zone or the image of the body which invaded from the inputted location is read from a memory card 10, and is displayed on a screen.

[Translation done.]

* NOTICES *

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1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the important section block diagram of one example of the monitor image recording method by this invention.

[Drawing 2] It is an example of field division of the image of the monitor image recording method by this invention.

[Drawing 3] It is a flow chart for explaining actuation of the monitor image recording method by this invention.

[Description of Notations]

- 1 Image Pick-up Section
- 2 A/D-Conversion Section
- 3 Trespass Detecting Element
- 4 Distinction Section
- 5 Setting-Out Section
- 6 Timing-Control Section
- 7 Clock Section
- 8 Record Control Section
- 9 Interface
- 10 Memory Card
- 11 Signal Output Part
- 12 Control Section

[Translation done.]

* NOTICES *

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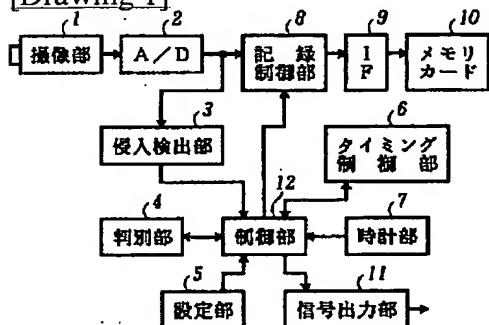
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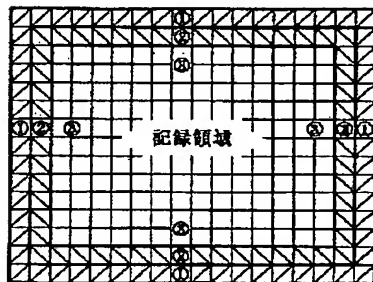
DRAWINGS

[Drawing 1]

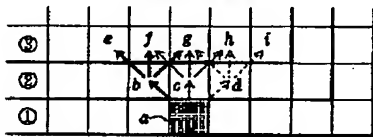


[Drawing 2]

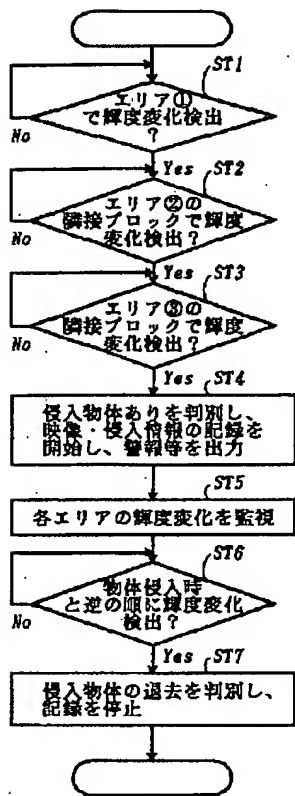
(イ) 検出領域・記録領域



(ロ) 侵入物体の動き



[Drawing 3]



[Translation done.]